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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICK L. ADKINS
and SCOTT GUELCHER

Appeal 2009-014212
Application 10/687,156
Technology Center 1700

Before ADRIENE LEPIANE HANLON, CHARLES F. WARREN, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

DECISION ON APPEAL

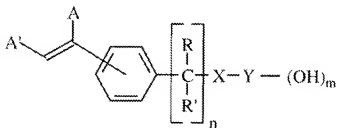
Applicants appeal to the Board from the decision of the Primary Examiner finally rejecting claims 11-16, 19-27, and 29-31 in the Office Action mailed January 9, 2008. 35 U.S.C. §§ 6 and 134(a) (2002); 37 C.F.R. § 41.31(a) (2007).

We affirm the decision of the Primary Examiner.

Claim 22 illustrates Appellants' invention of a pre-formed stabilizer and a process for preparing the same, and is representative of the claims on appeal:

22. A pre-formed stabilizer comprising the free-radical polymerization product of:

(1) from about 10 to 40% by weight, based on 100% by weight of the pre-formed stabilizer formulation, of an ethylenically unsaturated macromer represented by the formula:



wherein:

A and A' : each independently represent a hydrogen atom, an alkyl radical containing from 1 to 10 carbon atoms which is optionally substituted with one or more halogen atoms, or an aryl radical containing from 5 to 6 carbon atoms which is optionally substituted with one or more halogen atoms;

n : represents 0 or 1;

X : represents an oxygen atom or a sulfur atom;

R and R' : each independently represent a hydrogen atom, or an alkyl radical containing from 1 to 10 carbon atoms which is optionally substituted with one or more oxygen atoms or one or more halogen atoms;

Y : represents a polymerized form of at least one alkylene oxide containing from 2 to 8 carbon atoms in which the carbon atoms are aliphatically bound, aromatically bound, cycloaliphatically bound or a combination thereof;

and

m : represents 1;

with

(2) from about 10 to 30% by weight, based on 100% by weight of the pre-formed stabilizer formulation, of at least one ethylenically unsaturated monomer;

in the presence of

(3) from about 0.01 to 2% by weight, based on 100% by weight of the pre-formed stabilizer formulation, of at least one free-radical polymerization initiator;

and

(4) from about 30 to 80% by weight, based on 100% by weight of the pre-formed stabilizer formulation, of a liquid diluent;

and, optionally,

(5) a chain transfer agent.

Appellants request review of the grounds of rejection under 35 U.S.C. §§ 102(b) and 103(a) advanced on appeal by the Examiner: claims 11-16, 19, 22-27, 29, and 31 under § 102(b) over Hoffman (WO 87/ 03886 A1); claims 11-16, 19, 21-27, 29, and 31 under § 102(b) over Holeschovsky (US 6,013,731); claims 20, 21, 30, and 31 under § 103(a) over Hoffman in view of Holeschovsky; and claims 11-16, 19, 22-27, and 29 over Yu (US 4,680,358). App. Br. 6;¹ Ans. 3, 4, and 5.

Appellants argue the claims in each ground of rejection as a group. *See generally* App. Br. Thus, we decide this appeal based on claims 22 and 30. 37 C.F.R. § 41.37(c)(1)(vii) (2005).

Opinion

As a matter of claim interpretation, the claimed “pre-formed stabilizer” is characterized in product-by-process claim 22 as “comprising” at least “the free-radical polymerization product” of the specified reactants

¹ We considered the Appeal Brief filed June 27, 2008.

in the presence of the specified reagents, employed in the specified amounts, the process also encompassed by independent process claim 11. *See, e.g., In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985), and cases cited therein (“even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself”). Claim 30 depends on claim 22.

I. § 102(b): Claim 22 over Hoffman

Appellants submit that Hoffman does not describe the claimed pre-formed stabilizer to one skilled in the art, principally arguing that “[a] critical difference between the dispersants of [Hoffman] and the presently claimed pre-formed stabilizers is that these dispersants are soluble in a base polyol . . . while the pre-formed stabilizers are not.” Reply Br. 2, citing Hoffman 3:25-26 and 48-29; *see* App. Br. 6-8; Reply Br. 1-2. Appellants contend that “[p]re-formed stabilizers of the present invention are not soluble in a base polyol,” and are clearly described in the Specification “as co-polymer dispersions which have a low solids content.” App. Br. 6, citing Specification 2:19 to 3:4, 26:27-31, and 27:1-8; *see* Reply Br. 1-2. According to Appellants, Hoffman’s “dispersants are clearly disclosed as being soluble in the base polyol.” App. Br. 7, citing Hoffman 3:15-32, and 4:24-30. Appellants contend that “[Hoffman] expressly discloses that ‘relative proportions of the vinyl-terminated adduct and the ethylenically unsaturated monomer (when used) are such that the dispersant has the require solubility’ . . . and that ‘too much of the ethylenically unsaturated monomer can cause the formation of an insoluble dispersant, which is undesirable.’” App. Br. 7, citing Hoffman 10:5-10 and 10:19-21; *see* Reply Br. 2. Appellants submit that if the claimed and Hoffmann compositions are

the same, the compositions would have the same properties. App. Br. 8.

Appellants contend that the vinyl-terminated adducts formed in Hoffman's working examples "do not correspond to the specified structure of the macromer required by the presently claimed invention," and that "the relative amounts of components used to prepare the dispersants in [Hoffman] is different than and does not overlap with, the relative amounts of the components required by the presently claimed invention." App. Br. 8-9; *see also* App. Br. 8-10, citing Hoffman's working Examples.

Appellants further contend that the skilled artisan would be led by Hoffman "to believe that unsuitable dispersants result from high levels of ethylenically unsaturated monomers," that "dispersants that are insoluble in a base polyol are unsuitable for preparing polymer polyols, and that insoluble dispersants can be caused by too much of the ethylenically unsaturated monomer," such that Hoffman "leads the skilled artisan away from the presently claimed invention." App. Br. 10; *see also* App. Br. 7-8.

The Examiner submits that Hoffman discloses a macromer that meets the macromer (1) of claim 22, and further discloses that addition polymerization can occur in the presence of monols, polyols, and chain transfer agents as well as quantities of the components that fall within the claims. Ans. 3-4, citing Hoffman 6:18-20; 6:42-44; 10:10-12; 11-13; 13:34 through 14; and 15-17. The Examiner contends that Appellants' arguments do not reflect the scope of the claims which do not limit the pre-formed stabilizer to a dispersion, or specify solids content and particle size. Ans. 7. The Examiner further contends that Hoffman's teachings are not limited to the working examples, and maintains that the reference teaches quantities of components that satisfy the claimed amounts. Ans. 7.

We find that the passages of the Specification relied on by Appellants to establish that the claimed pre-formed stabilizers defined by the specified method in claim 22 has certain properties (*see above* p. 4), include the definition of the term “pre-formed stabilizer” as “an intermediate obtained by reacting a macromer containing reactive unsaturation . . . with monomers . . . , optionally in a diluent or a solvent (i.e., methanol, isopropanol, toluene, ethylbenzene, polyether polyols, etc.) to give a co-polymer (dispersion having e.g. a low solids content (e.g. <20%), or soluble grafts, etc.).” Spec. 2:19-25. We fail to find in this disclosure or in the other cited disclosures that the process parameters specified in claim 22 will invariably result in the properties of the claimed pre-formed stabilizers asserted by Appellants. In this respect, we note, for example, the disclosures that “[r]eaction conditions may be controlled such that a portion of the co-polymer precipitates from solution to form a solid” (Spec. 2:31 to 3:1); “[i]n many applications, a dispersion having low solids content (e.g., 3 to 15% by weight) is obtained,” and “[p]referably, the reaction conditions are controlled such that the particle size is small” (Spec. 3:1-3); “[i]n a preferred embodiment, the pre-formed stabilizer of the present invention comprises dispersions in the diluent” (Spec. 26:27-29); and, “[t]he combination of conditions selected for the preparation of the pre-formed stabilizer should not lead to cross-linking or gel formation in the pre-formed stabilizer” (Spec. 27:1-3).

We further agree with the Examiner’s findings with respect to the disclosure that one skilled in the art would find in Hoffman. Ans. 3-4 and 7. Appellants do not dispute the Examiner’s finding that Hoffman describes macromers as claimed, ethylenically unsaturated monomers as claimed, and quantities of these reactants and the reagents as claimed. *See* App. Br. 6-8;

Reply Br. 1-2. We note, in this respect, that the Examiner has not relied on Hoffman's working examples.

With respect to Appellants' position, we agree that Hoffman describes the copolymerization of a macromer and an ethylenically unsaturated monomer such that the "resulting dispersant is soluble in a base polyol." Hoffman, e.g., 3:15-32, 4:24-31, 10:1-5, 10:19-21, 12:4-6. In this respect, we further find that Hoffman describes the use of "a monol, polyol, or mixture thereof as a solvent," such that "the dispersant is obtained as a solution of the . . . copolymerized vinyl-terminated adduct in the monol or polyol solvent." Hoffman 13:4-32. Hoffman uses "[t]he term 'dispersant' . . . to designate a solution of the polymer of a vinyl-terminated adduct in a monol or polyol containing at least 10 wt.-% of the polymer as obtained from the polymerization reaction of the adduct." Hoffman 13:38-43.

On this record, we agree with the Examiner's finding that Hoffman would have described to one skilled in the art a description of a product formed from a macromer and an ethylenically unsaturated monomer by a process which satisfies the process parameters specified in claim 22 within the meaning of § 102(b). Appellants have not identified any difference between the process specified in claim 22 and Hoffman's teachings as relied on by the Examiner, which would distinguish the claimed pre-formed stabilizers over Hoffman's product. Indeed, the difference in the properties of the claimed product and that of Hoffman argued by Appellants appears to be due to disclosed optional and preferred process parameters which are not specified by limitations in claim 22. *See, e.g., In re Sussman*, 141 F.2d 267, 269-70, 60 USPQ 538, 541 (CCPA 1944) ("[I]f appellant obtains a new product through reaction of the elements mentioned, it must be due to some

step in the process not included in the claim.”). We find no basis in the language of claim 22 or in the disclosure in the Specification on which to read the optional and preferred disclosures as limitations on the product in claim 22. *See, e.g., Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005)(en banc); *In re Van Geuns*, 988 F.2d 1181, 1184-185 (Fed. Cir. 1993); *In re Zletz*, 893 F.2d 319, 321-22 (Fed. Cir. 1989). We are mindful of the definition of the term “dispersion” relied on by Appellants in support of their position.² We find that as defined in the chemical arts dictionary cited by Appellants, a “dispersion” is a “two-phase system,” including “solid/liquid,” in similar manner to a “solution” which has two “phases,” including “solid-liquid.”³ In this respect, Appellants disclose controlling reaction conditions to precipitate a portion of the pre-formed stabilizer copolymer from solution, resulting in a dispersion containing pre-formed stabilizer, and Hoffman uses the term “dispersant” to designate a solution containing at least 10 wt.-% of the formed product. *See above* pp. 6 and 7. Thus, on this record, it is not apparent that the claimed and Hoffman products are distinguishable on the basis of the terms used to describe the respective products. Furthermore, the argument that Hoffman teaches away or leads away from a product having the properties disclosed by Appellants does not address the issue of anticipation. *See, e.g., Celeritas Technologies, Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361(Fed. Cir. 1998) (“[T]he question whether a reference ‘teaches away’ from the invention is inapplicable to an

² *Hawley’s Condensed Chemical Dictionary* 433 (11th ed., N. Irving Sax and Richard J. Lewis, Sr., revisors, Van Nostrand Reinhold, 1987).

³ *See, e.g., Hawley’s Condensed Chemical Dictionary* 415, 1031 (14th ed., Richard J. Lewis, Sr., revisor, John Wiley & Sons, Inc., 2001).

anticipation analysis.”).

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of anticipation found in Hoffman with Appellants’ countervailing evidence of and argument for non-anticipation and conclude, by a preponderance of the evidence and weight of argument, that the claimed invention encompassed by appealed claims 11-16, 19, 22-27, 29, and 31 is anticipated as a matter of fact under 35 U.S.C. § 102(b).

II. § 102(b): Claim 22 over Holeschovsky

In response to Appellants’ position that Holeschovsky does not anticipate because the macromer of claim 22 is monofunctional in that it contains only one hydroxyl group, and thus the only possible overlap between the claimed invention encompassed by claim 22 and Holeschovsky exists when the stabilizer precursor specifically disclosed by Holeschovsky is a monol, the Examiner maintains that Holeschovsky is “relied upon solely for its teachings explaining that the pre-formed stabilizers in [Hoffman] . . . may alternatively be employed.” App. Br. 11-13; Ans. 8, citing Holeschovsky col. 8, ll. 28-30; *see also* Ans. 4; App. Br. 14-16; Reply Br. 4. The Examiner further maintains that “[t]he fact that their use may not be preferred does not detract from the fact they are disclosed.” Ans. 8.

In the Reply Brief, Appellants submit that Holeschovsky identifies Hoffman’s pre-formed stabilizers as “not preferred” and as “soluble preformed stabilizers,” arguing that Holeschovsky thus “clearly recognizes the soluble preformed stabilizers of [Hoffman] as being different than the conventional preformed stabilizers described in [Holeschovsky],” and that “[i]f these are indeed different as Appellants previously stated and presently

maintain, then these can not anticipate the presently claimed invention.” Reply Br. 3. Thus, Appellants contend that “for the reasons as discussed . . . with respect to [Hoffman], the substitution of [Hoffman’s] preformed stabilizers for those of [Holeschovsky] does not result in the presently claimed invention.” Reply Br. 3.

Contrary to Appellants’ position, we agree with the Examiner’s finding that Holeschovsky would have described the use of Hoffman’s pre-formed stabilizers to one skilled in the art. The fact that Holeschovsky does not prefer Hoffman’s pre-formed stabilizers does not detract from the Holeschovsky’s teaching that the same can be used for Holeschovsky’s purposes. Appellants do not argue that Hoffman’s pre-formed stabilizers cannot be used for Holeschovsky’s purposes, but contend that the claimed invention encompassed by claim 22 is not anticipated by Hoffman’s pre-formed stabilizers, which issue we decided to the contrary above.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of anticipation found in Holeschovsky with Appellants’ countervailing evidence of and argument for non-anticipation and conclude, by a preponderance of the evidence and weight of argument, that the claimed invention encompassed by appealed claims 11-16, 19, 21-27, 29, and 31 are anticipated as a matter of fact under 35 U.S.C. § 102(b).

III. § 103(a): Claim 30 over Hoffman and Holeschovsky

Appellants submit that the combined teachings of Hoffman and Holeschovsky do not render obvious the claimed invention encompassed by dependent claim 30, which specifies that the diluent in the process specified in claim 22 is a monohydroxy alcohol, as determined by the Examiner. App.

Br. 16-17; Ans. 4-5. Appellants rely on the arguments advanced that Hoffman's pre-formed stabilizers are dispersants differing from the claimed pre-formed stabilizers and thus when combined with Holeschovsky would not result in the claimed invention. App. Br. 17. Appellants further rely on the arguments advanced that the pre-formed stabilizers specifically disclosed in Holeschovsky are also different from the claimed pre-formed stabilizers. App. Br. 17. In these respects, Appellants further contend that neither Hoffman nor Holeschovsky disclose the claimed macromer. App. Br. 18.

We are no more persuaded by Appellants' arguments here than we were above where we found that Hoffman discloses macromers falling within claim 22 and describes the claimed pre-formed stabilizers which Holeschovsky discloses as useful for the purposes specified in the reference.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teachings of Hoffman and Holeschovsky with Appellant's countervailing evidence of and argument for nonobviousness and conclude, by a preponderance of the evidence and weight of argument, that the claimed invention encompassed by appealed claims 20, 21, 30, and 31 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

IV. § 103(a): Claim 22 over Yu

The Examiner submits that the preamble term "pre-formed stabilizer" does not convey "any definitive limitation" in claim 22. Ans. 9. Appellants submit that "pre-formed stabilizers" are described in the Specification "as being copolymer dispersions." Reply Br. 4, citing Specification 2:19 to 3:4, 26:27-31, and 27:1-8. We have considered the disclosures in the Specification relied on by Appellants, finding that the term

“pre-formed stabilizer” is defined in the Specification. *See above* p. 6. Thus, on this record, we determine the preambular term “pre-formed stabilizer” specifies a copolymer which is soluble or can form a dispersion in a solvent, and is characterized by the process specified in the body of claim 22.

We agree with the Appellants’ analysis of Yu’s disclosure, to which we add the following for emphasis. App. Br. 18-22; Reply Br. 4-5. We find that Yu would have disclosed to one of ordinary skill in the art that the disclosed macromers can be used as dispersants in dispersion polymerization processes, and illustrates in Example 2 the use of 12 grams of a specific “homomacromer” as a dispersant in the precipitation polymerization of 115 grams of acrylic acid in the presence of a crosslinking agent and benzene as a solvent. *See* Yu, e.g., col. 9, ll. 7-27, and col. 14, ll. 31-61; *see also* cols. 3-8. We find that Yu further discloses that the macromers can be copolymerized with conventional vinyl, acrylic and diene comonomers, and by varying the ratio of the comonomers to the macromers, “copolymers may be obtained with a wide range of properties ranging from hard plastic to soft elastomeric.” Yu col. 9, l. 29 to col. 10, l. 16; *see also* col. 10, l. 17 to col. 11, l. 4.

On this record, we agree with Appellants’ position that the Examiner erred in concluding that Yu would have taught pre-formed stabilizers falling within claim 22 to one of ordinary skill in this art. Indeed, as Appellants argue and contrary to the Examiner’s position, Yu describes the copolymers obtained with the macromers disclosed therein as hard plastics to soft elastomeric, and not as dispersants, and describes adjusting the relative amounts of the macromers and the comonomers with respect to the desired

properties of the disclosed copolymer products. Ans. 5-7 and 9-10.

Thus, the Examiner has not established claim 22 would have been obvious over Yu, and accordingly, we have reverse the ground of rejection of claims 11-16, 19, 22-27, and 29 under 35 U.S.C. § 103(a).

In sum, we have affirmed the grounds of rejection of appealed claims 11-16, 19-27, and 29-31 over Hoffman and Holeschovsky, either alone or in combination, and have reversed the ground of rejection of appealed claims 11-16, 19, 22-27, and 29 over Yu.

The Primary Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

kmm